

Appl. No. 09/896,646
Amtd. Dated: July 25th, 2005
Reply to Office Action of January 26th, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (cancelled) A communication system comprising:

~~at least one base station for modulating a carrier signal in response to a data stream, which is to be transmitted by the base station, in order to produce a modulated carrier signal and transmit the modulated carrier signal through at least two distinct propagation media, said base station comprising;~~

~~at least two antennas coupled to the respective media;~~

~~a transmission unit coupled to the respective antennas, wherein the transmission unit receives the data stream and modulates the carrier signal to produce the modulated carrier signal; and~~

~~a calculation unit coupled to the transmission unit and the at least two antennas for receiving the feedback information from the mobile station, and providing weight information to the transmission unit such that each of the modulated carrier signals being transmitted over each of the media are weighted; and~~

~~at least one mobile station in communication with the base station for receiving the modulated carrier signal, which undergoes distortion due to propagation through a medium, as a distorted carrier signal through the at least two media and demodulating the distorted signal to recover the data stream,~~

~~wherein distinct pilot signals, known by the mobile station, are transmitted to the mobile station by the base station through each of the propagation media, and the mobile station receives the pilot signals as distorted pilot signals through each of the propagation media, then compares the received distorted pilot signals to determine and predict propagation measurements, and wherein feedback information, which is determined therefrom, is transmitted from the mobile station to the base station, then utilized by the base station to alter the characteristics of the modulated carrier signal prior to transmission.~~

2. (cancelled).

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3. (cancelled) ~~The system of claim 1, wherein the base station transmits a distinct pilot signal to the mobile station via each of the at least two antennas.~~
4. (cancelled) ~~The system of claim 3, wherein the predicted feedback information is transmitted from the mobile station to the base station via a feedback channel.~~
5. (currently amended) A method for providing feedback from a mobile station to a base station base based on predicted information, the method comprising:
 - performing propagation measurements for a plurality of propagation media;
 - estimating a representative value for each of the at least two of the plurality of propagation media based on the propagation measurements from at least two antennas;
 - performing prediction of future propagation measurements for each of the plurality of propagation media; and
 - generating the feedback information based on prediction of future propagation measurements.
6. (original) The method of claim 5, further comprising conveying the feedback information to the base station using a feedback channel.
7. (New) A method for supporting signal transmission, the method comprising:
 - receiving a first pilot signal transmitted over one of a plurality of distinct channels;
 - receiving a second pilot signal transmitted over another one of the distinct channel, wherein the first pilot signal and the second pilot signal are identical;
 - determining weights, corresponding to the channels transporting the pilot signals, based on the received first pilot signal and the received second pilot signal; and
 - sending feedback information based on the determined weights to the base station.
8. (New) The method of claim 7, further comprising:
 - receiving a modulated carrier signal; and

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demodulating the carrier signal to recover a data stream.

9. (New) The method of claim 7, further comprising:

modulating a data stream for transmission back to the base station.

10. (New) The method of claim 7, further comprising:

quantizing the weights as the feedback information.

11. (New) The method of claim 7, wherein the weights are determined every Power Control Group (PCG).

12. (New) The method of claim 7, wherein the weights are distinct for each channel.

13. (New) The method of claim 7, wherein the feedback information is transmitted back to the base station via a feedback channel.

14. (New) An apparatus for supporting signal transmission, the apparatus comprising:

an antenna configured to receive a first pilot signal transmitted over one of a plurality of distinct channels, and a second pilot signal transmitted over another one of the distinct channel, wherein the first pilot signal and the second pilot signal are identical; and

a feedback unit configured to determine weights, corresponding to the channels transporting the pilot signals, based on the received first pilot signal and the received second pilot signal, wherein the feedback unit generates feedback information based on the determined weights for transmission to the base station.

15. (New) The apparatus of claim 14, further comprising:

a demodulation unit configured to demodulate a carrier signal to recover a data stream.

16. (New) The apparatus of claim 14, further comprising:

a modulation unit configured to modulate a data stream for transmission back to the base station.

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17. (New) The apparatus of claim 14, wherein the feedback unit is further configured to quantize the weights as the feedback information.

18. (New) The apparatus of claim 14, wherein the weights are determined every Power Control Group (PCG).

19. (New) The apparatus of claim 14, wherein the weights are distinct for each channel.

20. (New) The apparatus of claim 14, wherein the feedback information is transmitted back to the base station via a feedback channel.

21. (New) A method for supporting signal transmission, the method comprising:

transmitting a first pilot signal over one of a plurality of distinct channels to a mobile station;

transmitting a second pilot signal over another one of the distinct channels, wherein the first pilot signal and the second pilot signal are identical prior to transmission; and

receiving feedback information, in response to the transmitted pilot signals, from the mobile station, wherein the mobile station determines weights corresponding to the channels transporting the pilot signals based on the transmitted first pilot signal and the transmitted second pilot signal.

22. (New) The method of claim 21, wherein the weights in the feedback information are utilized to assign antenna weights.

23. (New) The method of claim 21, wherein the feedback information is received via a feedback channel.

24. (New) An apparatus for supporting signal transmission, the apparatus comprising:

a first antenna configured to transmit a first pilot signal over one of a plurality of distinct channels to a mobile station;

a second antenna configured to transmit a second pilot signal over another one of the distinct channels, wherein the first pilot signal and the second pilot signal are identical prior to transmission; and

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a processor unit configured to receive feedback information, in response to the transmitted pilot signals, from the mobile station, wherein the mobile station determines weights corresponding to the channels transporting the pilot signals based on the transmitted first pilot signal and the transmitted second pilot signal.

25. (New) The apparatus of claim 24, wherein the weights in the feedback information are utilized to assign antenna weights for the first antenna and the second antenna.

26. (New) The apparatus of claim 24, wherein the feedback information is received via a feedback channel.

27. (New) An apparatus for supporting channel prediction, the apparatus comprising:

means for determining weighting values associated with a first signal and a second signal received from a base station based on a difference of the received signals, wherein the first signal and the second signal are transmitted respectively over spatially separate antennas of the base station;

means for quantizing the weighting values; and

means for generating a feedback command based on the quantized weighting values.

28. (New) The apparatus of claim 27, wherein the weighting values are determined at periodic intervals from information obtained from the first signal and the second signal.